Next Generation Mobility Management – USDOT Connected Vehicle Research Advances Mobility Services for All Americans (MSAA)

2012 CTAA Expo
Community Transportation Research: Where We Are and Where We're Going
Baltimore, MD
May 23, 2012

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Noblis
Challenges

Federal Agencies & Grant $

State Governors & Cabinet Secretaries

Local Government

Medical Provider

Transportation

Education

Employment

Shopping

Recreation

Independence

Family

Health Care
One Integrated Vision

One Call

Consumer with Mobility Needs

U.S. State & Local Government Funds, Policies, and Regulations

Funding Agencies

Transportation Service Providers

Employment
Health Care
Family
Education
Recreation
Independence

Disability Service Provider
Private Taxi
Public Transit Authority
Medical Transit Provider
ADA Para-transit

Transportation Service Providers

Agency on Aging
Head Start

U.S. State & Local Government Funds, Policies, and Regulations

Funding Agencies

Education
HHS
Labor
Agriculture
Interior
Housing
Social Security
Veterans Affairs
**MSAA Initiative**

- A major USDOT ITS initiative
- Collaboration with UWR initiative
- **UWR/MSAA joint demonstration of** scalable and replicable **Travel Management Coordination Centers (TMCC)** that
  - Simplified point of access
  - Comprehensive set of services
  - Utilizing ITS
TMCC Demonstration Sites

- TMCC Model Deployment Sites
- TMCC Phased Implementation Sites

U.S. Department of Transportation
Aiken SC TMCC Status

- Go-Live ceremony – August 17, 2010
- Include six Lower Savannah counties with mobility management services and regional transit coordination
- Leverage Systems Transformation Grant from the DHHS Centers for Medicare and Medicaid Services
- Integrate TMCC with the local Aging and Disability Resource Center
- Reporting promising results and success stories
- Preliminary independent evaluation outcome expected July 2012
Paducah KY TMCC Status and Challenge

- Go-Live ceremony – March 12, 2010
- 4 partnering community transportation providers
- Serving 200,000 population across 2,500 square miles
- Integrate community transportation and human service information and referral functions
- TMCC operations stalled due to accounting errors and local agency leadership turnovers
- Encountering technical IVR compatibility issue
- Reengaging new GM and project partners
Camden County NJ TMCC Status and Challenge

- A unique showcase for MSAA
- Led by a true human service agency (workforce investment board) joined by faith-based organizations
- Delayed due to mostly institutional issues, such as local stakeholder commitment and complication of Medicaid brokerage
- Active State DOT participation and support
- Back on track and moving forward with more involved technical support service from USDOT
- Estimated Go-Live: Fall 2012
# A Glance of Paratransit Operations

## Allendale County, South Carolina

<table>
<thead>
<tr>
<th>Year</th>
<th>Trips</th>
<th>Average Trip Distance</th>
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<tbody>
<tr>
<td></td>
<td># of Trips</td>
<td>% of change</td>
<td>Miles</td>
<td>% of change</td>
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<tr>
<td><strong>Medicaid</strong></td>
<td></td>
<td></td>
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<tr>
<td>2007</td>
<td>9,803</td>
<td>-</td>
<td>23</td>
<td>-</td>
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<tr>
<td>2008</td>
<td>10,497</td>
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<td>21</td>
<td>(-8.7%)</td>
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<td>10,802</td>
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<td>17</td>
<td>(-26.1%)</td>
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<tr>
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<td>16.7%</td>
<td>16</td>
<td>(-30.4%)</td>
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<td><strong>Demand Response</strong></td>
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<td></td>
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<tr>
<td>2008</td>
<td>6,549</td>
<td>-</td>
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<td>2009</td>
<td>6,555</td>
<td>0.1%</td>
<td>12</td>
<td>0.0%</td>
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<td>2010</td>
<td>6,747</td>
<td>3.0%</td>
<td>11</td>
<td>(-8.3%)</td>
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</table>

*: # of trips for few months were “estimated” due to missing data
Broden Field Impacts through Outreach

• Outreach Products and Activities
  - “How-to” Guides
  - NTI training courses
  - Webinars (coordination with PCB)
  - User community building

• Final Outreach Needs Scanning
  • September 2012 stakeholder workshop for Input
  • Balance outreach needs and funding availability
Moving beyond MSAA – Connected Vehicle Research

- Connected Vehicle is a suite of technologies and applications that use wireless communications to provide **connectivity**:
  - Among vehicles of all types
  - Between vehicles and roadway infrastructure
  - Among vehicles, infrastructure and wireless consumer devices

All Roads, All Modes, All The Time!
Connected Environment
Integrated data environment further supports intermodal mobility management capability.
Real-time Data Capture and Management (DCM)

- Vehicle Status Data
- Weather Data
- Truck Data
- Transit Data

Dynamic Mobility Applications (DMA)

- Reduce Speed 35 MPH
- Weather Application
- Real-Time Travel Info
- Fleet Management/ Dynamic Route Guidance
- Signal Phase & Timing Adjusts Real-Time Conditions
- Safety Alerts and Warnings

Data Environment
Data Environments and Application “Bundles”

90+ ideas → 30 applications → 7 bundles
Integrated Dynamic Transit Operations (IDTO)

- Integrated transit operations that provide dynamic scheduling, dispatching, and routing of transit vehicles, and facilitate passenger connection protection and dynamic ridesharing:
  - Dynamic Transit Operations (T-DISP)
  - Connection Protection (T-CONNECT)
  - Dynamic Ridesharing (D-RIDE)

- USDOT has just completed IDTO Concept of Operations. The system requirements document is expected summer 2012
The commuter train arrives 8 minutes late due to a sick passenger.

Prior to boarding the train at their original destination, travelers initiated a request for connection protection using their personal mobile devices.

Travelers receive a message on their personal mobile devices that the bus departure time has been delayed 12 minutes, thus ensuring a smooth connection.

The bus receives a message indicating that it should hold for an additional 12 minutes for travelers from the delayed commuter train.
A fixed-route bus receives notification from the T-DISP system that there are potential riders nearby. The T-DISP central system dynamically modifies the route of the bus, matching compatible trips together.

A traveler, waiting for a bus, is running late for a meeting. Using their personal mobile device, which supplies their current location, the traveler inputs their departure time, and desired destination into the T-DISP system. The traveler is notified by the T-DISP system that a private shuttle bus is nearby and can take the traveler to their destination.

A nearby shuttle bus that is part of the T-DISP program, receives a traveler’s request. The private shuttle bus is en-route to pick up the passenger.

Using their personal mobile device, which supplies their current location, travelers input their departure time and desired destination into the T-DISP system.
**D-RIDE**

1. **A single-occupancy driver is notified of traffic congestion on the interstate through in-vehicle technology.** The D-RIDE application notifies the driver of potential carpoolers nearby. The D-RIDE system enables the driver to find and accept potential ride matches along their route.

2. **Using personal mobile devices, which supplies their current location, travelers communicate their ridesharing needs to the D-RIDE system.**

3. **The vehicle picks up two additional passengers allowing the vehicle to enter the HOV-3 lanes.**

4. **Vehicles using the HOV-3 lanes avoid congestion on the Interstate.**
IDTO Status

- **Recent Accomplishments:**
  - **Fall 2011:** Begun concept development, needs identification and present concept to Stakeholders
  - **January 2012:** Develop Goals, Performance Measures, Users Needs and present to Stakeholders
  - **May 2012:** Completed ConOps and Functional and Performance Requirements Drafting begun

- **Next Steps:**
  - **May 24:** Dynamic Mobility Applications Stakeholders Webinar/Meeting
  - **July 2012:** Draft Functional and Performance Requirements and Conduct Stakeholders Walkthrough
  - **August 2012:** Final Report on Functional and Performance Requirements
For More Information…..

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